

IN THE CLAIMS:

Please amend the claims as follows:

Claim 1 (Original): An electron emitting device having a lower electrode near a substrate and an upper electrode far from the substrate respectively, formed of a plurality of electron emitting elements which emit electrons from a side of the upper electrode, characterized in that the electron emitting elements are made independent and in that space is formed therebetween, and in that the upper electrode extends across the plurality of electron emitting elements and the space by a bridging portion of the upper electrode.

Claim 2 (Original): The electron emitting device according to claim 1, wherein the bridge portion is provided with at least one through hole or notched portion.

Claim 3 (Original): The electron emitting device according to claim 2, wherein the through hole or notched portion is circular-shaped, rectangular-shaped, diamond-shaped, barrel-shaped, star-shaped, shoulder drum shaped, or a shape formed of part of these shapes.

Claim 4 (Currently Amended): The electron emitting device according to ~~any of claims 1 to 3~~ claim 1, wherein the bridge portion extends approximately parallel to the substrate.

Claim 5 (Currently Amended): The electron emitting device according to ~~any of claims 1 to 4~~ claim 1, wherein both the lower electrode, and the upper electrode connected at the bridge portions are stripe shaped electrodes arranged in positions that are mutually orthogonal.

Claim 6 (Currently Amended): The electron emitting device according to ~~any of claims 1 to 4~~ claim 1, wherein the upper electrode extends over a plurality of electron emitting elements and spaces by the bridge portions without the electron emitting elements being limited to the row or column directions, and the lower electrode is separated and independent for each electron emitting element.

Claim 7 (Original): The electron emitting device according to claim 5 or claim 6, wherein the electron emitting elements further comprise an insulator layer and an electron supply layer made from a semiconductor deposited between the lower electrode and the upper electrode, and when a voltage is applied between the lower electrode and the upper electrode electrons are emitted from the upper electrode.

Claim 8 (Original): The electron emitting device according to claim 7, wherein the bridge portion comprises the material of the insulator layer that is integral with the insulator layer of the electron emitting element.

Claim 9 (Currently Amended): The electron emitting device according to ~~any of claims 1 to 8~~ claim 1, wherein the electron supply layer is made from an amorphous phase that comprises silicon or a mixture or compound whose main component is silicon.

Claim 10 (Currently Amended): The electron emitting device according to ~~any of claims 1 to 9~~ claim 1, further comprising at least one electron emitting section formed from an island

area in which the film thickness of the insulator layer and the upper electrode gradually decrease towards the electron supply layer.

Claim 11 (Original): The electron emitting device according to claim 10, wherein in the island areas the upper electrode terminates on the insulator layer.

Claim 12 (Original): The electron emitting device according to claim 10 or claim 11, wherein in the island areas the insulator layer terminates on the electron supply layer.

Claim 13 (Currently Amended): The electron emitting device according to ~~any of claims 10 to 12~~ claim 10, wherein the island areas are depressions in the flat surface of the upper electrode.

Claim 14 (Currently Amended): The electron emitting device according to ~~any of claims 10 to 13~~ claim 10, wherein the insulator layer is made from dielectric material, and a part other than the island areas has a film thickness of 50 nm or greater.

Claim 15 (Currently Amended): The electron emitting device according to ~~any of claims 10 to 14~~ claim 10, wherein electrically insulating masks are provided in the island areas.

Claim 16 (Currently Amended): The electron emitting device according to ~~any of claims 10 to 15~~ claim 10, wherein a carbon area comprising carbon or a mixture with carbon as a component or a carbon compound is provided in the top, bottom, or middle of the island areas.

Claim 17 (Original): A method of manufacturing an electron emitting device having a lower electrode near a substrate and an upper electrode far from the substrate respectively, formed of a plurality of electron emitting elements which emit electrons from a side of the upper electrode, with space being formed between the electron emitting elements, and the upper electrode being extending across the plurality of electron emitting elements and the space by a bridging portion of the upper electrode, the method characterized by comprising:

an electron emitting section forming step of forming a laminated body on which an upper electrode material layer is deposited to form a plurality of electron emitting elements on a substrate;

a bridge forming step of forming a plurality of bridge portions provided with at least one through hole or notch along a line that separates the plurality of electron emitting elements by etching the upper electrode material layer;

a cutting step of etching part of the exposed insulator layer by anisotropic etching, and either etching the substrate and lower electrode, or in subsequently carried out isotropic etching, etching the substrate and the lower electrode as far as the part that can be exposed, using the bridge portions as a mask; and

a separating step of separating the exposed part of the insulator layer into the plurality of electron emitting elements by etching by isotropic etching to enlarge the space using the bridge portions as a mask.

Claim 18 (Original): The method of manufacturing an electron emitting element according to claim 17, wherein in the cutting step mixed gas comprising CH_2F_2 , SF_6 , Cl_2 is brought into contact with the exposed part of the insulator layer.

Claim 19 (Original): The method of manufacturing an electron emitting element according to claim 17 or 18, wherein in the separating step mixed gas comprising CF_4 is brought into contact with the exposed part of the insulator layer.

Claim 20 (Currently Amended): The method of manufacturing an electron emitting element according to ~~any of claims 17 to 19~~ claim 17, wherein the electron emitting section forming step comprises:

- an electron supply layer forming step of forming an electron supply layer comprising silicon or a mixture whose main component is silicon or a silicon compound on the substrate;
- a mask forming step of forming a mask that forms a canopy around the portion in contact with the electron supply layer on the electron supply layer;
- an insulator layer forming step of forming an insulator layer formed from a thin film of insulation material by depositing insulation material on the electron supply layer and the mask, so that around the part in contact with the mask the film thickness of the insulator layer gradually decreases to form at least one island area; and
- an upper electrode forming step of forming a film of the upper electrode on the insulator layer to form the island area as an electron emitting section.

Claim 21 (Original): The method of manufacturing according to claim 20, further comprising a carbon area forming step of forming a carbon area comprising carbon or a mixture with carbon as a component or a carbon compound in the top, bottom, or middle of the island areas.

Claim 22 (Original): The electron emitting device according to claim 20 or claim 21, wherein in the bridge forming step the upper electrode and the insulator layer are etched by the isotropic etching method to form bridge portions including the material part of the insulator layer integral with the insulator layers and upper electrodes of adjacent electron emitting elements, in the through holes or notches bridge portions are formed including the material part of the insulator layer, and a canopy-shaped structure made from the material of the insulator layer is formed in the through holes or notches projecting towards the center of the through holes or the inside of the notches.

Claim 23 (Currently Amended): The method of manufacturing according to ~~any of claims 20 to 22~~ claim 20, wherein the masks are micro masks comprising a support portion that project in a direction normal to the substrate and a main mask that projects in a direction parallel to the substrate from the support portion, and the mask forming step comprises the steps of:

forming a support portion material layer and a main mask material layer on the substrate;
forming a resist mask thereon by photolithography so that at least part of the electron supply layer is exposed; and

etching the main mask and the support portion in that order by the dry etching method and the wet etching method to form the micro masks.

Claim 24 (Currently Amended): An imaging element, comprising:
an electron emitting device according to ~~any of claims 1 to 16~~ claim 1;
a photoelectric conversion film approximately parallel to and opposed to the upper
electrode and enclosing a vacuum space;
an optically transparent electrically conducting film deposited on the photoelectric conversion
film; and
an optically transparent front substrate that supports the photoelectric conversion film and
the optically transparent electrically conducting film.

Claim 25 (Original): The imaging element according to claim 24, further comprising a
mesh electrode arranged within the vacuum so as to not contact the electron emitting device of
the photoelectric conversion film.

Claim 26 (Currently Amended): A display device comprising:
an electron emitting device according to ~~any of claims 1 to 16~~ claim 1; and
an optically transparent front substrate in opposition to the upper electrode and enclosing
a vacuum space, with a fluorescent layer arranged on the surface on the side of the vacuum
space, and a collector electrode formed on the fluorescent layer and in opposition to the upper
electrode.

Claim 27 (Original): The display device according to claim 26, having an image display
array comprising a plurality of light emitters corresponding to the fluorescent layer.